

## Accelerator Systems Division Highlights Ending October 14, 2005

### Installation

#### Craft Snapshot 10/11/05

ASD productive craft workers	41.0
Foremen (Pd by 15% OH)	5.0
HSM management (Pd directly)	3.0
TOTAL AMSI WORKERS	49.0
Less WBS 1.9, 1.2 etc	4.0
Less absent	2.0
TOTAL PD BY ASD/ORNL DB WPs	35.0

### Accelerator Physics

#### Operations

##### Ion Source

- The external antenna source continues to operate with 1.23 ms pulses. Due to its uncesiated state, the current is less than 10 mA during most of the pulse.
- The 2 MHz Amplifier has arrived at Hamburg airport to be installed at DESY for testing their H- source with long pulses.
- Robert Welton gave a seminar on our H- source in the SNS Accelerator Physics and Technology Forum.
- Over k\$40 has been committed for purchasing spares and emittance scanner parts with long lead times.

### Survey and Alignment

#### RING

- This week the S & A Group completed initial alignment of all installed HEBT/RING/RTBT components. Work completed this week includes the Lamberton (ELS) and Half Cell Assemblies in Arc A.
- Already there is a significant list of magnets that have been disturbed or removed for various reasons that will require re-alignment.
- Alignment ring injection vacuum chambers in support of secondary foil alignment.
- Completed preliminary alignment of secondary foil.

#### RTBT

- Set guide pins on test stand.
- Completed realignment of QH02 & QV01 resulting from new physic's elevation for QV01.

### Mechanical

#### Ring Installation

- The HEBT Laser Stripping Magnet Assy as set in position in the Linac Dump beamline
- The HEBT magnet assy QH24 was set back in position.
- The HEBT Charge Exchange Scraper assemblies' carbon foils were modified.
- The Ring Injection Thick Foil Scraper Assembly was set in position in the beamline for alignment testing.
- The Ring Injection straight section beamline vacuum misc components' installation continued.
- The Ring Collimator straight section vacuum installation was completed and leak testing started.
- The Ring Collimator mid-section solenoid coil was modified.
- The Ring arc A alignment continued.
- The RTBT EDUMP beamline misc vacuum installation was started.
- The RTBT Collimator #1shielding installation was started.
- The RTBT/Target quad magnets' tunnel utility installation continued.
- The RTBT/Target quad magnets' buss bar brazing was started.
- The RTBT/Target quad magnets' Klaxon installation was started.

#### Water Systems Installation

- The prototype Ring half-cell cooling manifold was installed and the magnet flow rates verified.
- Installation of the PFN oil lines continued in the Ring Service Building.
- Installation of water connections to RTBT magnets continued.
- Test and checkout of the RTBT service building PS cooling system was started.

## Electrical

- The extraction septum (Lambertson) magnet power supply has been operated and commissioned along with its associated magnet. This includes integration with the EPICS control system and calibrations. This completes testing of 28 of 54 power supplies needed for the Ring ARR. 8 additional Ring corrector power supplies have been operated and commissioned along with their associated magnets. This includes integration with the EPICS control system. – testing is complete for 28 of the remaining 146 total correctors. Next week testing of the 7 injection straight magnets will begin.
- Research mechanics completed upgrades to LEBT chopper system cabling this week.

## RF

### Ring RF

- Completed ring tunnel connections for remaining three RF Stations.
- Working on bringing second station into operation.

## Cryo Systems

## Beam Diagnostics

### BPM:

### Wire Scanners:

### BLMs:

### Foil Video systems:

- We moved the secondary foil camera system to the tunnel to assess the field of view. As expected from the drawings, the camera can barely see the H- and H0 beam spots. The system will be useful as-is for commissioning, but improvements should be considered for the future.
- In the DAS lab, the fiber infrastructure was fixed and we have confirmed that the Foil Video system is receiving RTDL and event link signals. This timing integration is now the highest priority effort before system installation.
- We reviewed the target viewscreen cable plans with XFD.
- The target video camera has been integrated with LabVIEW and first tests indicate that frames can be acquired at the maximum rate.

### BCM:

- Splitter, filter, and over voltage protection board designed.
- Data-acquisition added to program, simulation added, and analysis code being developed.
- Digitizers have been received.

## Controls

- The timing system was moved from the Front End control room area to the Ring Service Building as planned. The move was required because the timing system needs to be close to the ring low-level RF control room so the Ring clock can be connected to both systems.
- Ring vacuum control system installation continued this week. The remaining vacuum controllers were installed in the Ring racks. 60% of the control cables are now installed to these controllers. Controllers are now being powered up and checkout of serial communications will begin soon.
- A contract was placed for fabrication of the missing control room console section (the NE arc). Hopes are to have this console section operational before Ring commissioning.
- Servers in the CLO Central Equipment Room were rearranged to fix some problems, improve the rack layouts, etc.
- Checkout of Target control systems continues. All FlowServe valve positioners have been calibrated and tested. The valves are mounted in locations remote from the control units, making the calibration a much bigger challenge than when they are all mounted in the same location (as is the case for nearly all of these valves used in the CF systems). All valves are being checked multiple times to be sure they will work reliably. A significant effort has gone into this activity this week.
- Target EPICS screens and databases are being modified as part of the process of entering the integrated testing phases. Operators and engineers are finding places where symbols and readouts are needed on screens to support more reliable operations.
- The archive request file was set up for the Ring Injection Dump in anticipation of starting integrated testing next week.